AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application:

Claim 1 (Currently Amended): An optoreflective structure for reflecting an optical signal following a path defined by an optical waveguide comprising a first cladding layer having a first planar cladding surface; a waveguide core disposed on the first planar cladding surface of said first cladding layer; a second cladding layer having a bottom surface disposed on said waveguide core and a top surface opposite to its bottom surface, said top surface providing ~~having~~ a second planar cladding surface; said first cladding layer, said second cladding layer and said waveguide core terminating in a beveled planar surface with a portion of the top surface of the second cladding layer being adjacent to the beveled planar surface; and an optoreflector disposed on said beveled planar surface and the adjacent portion of the top surface of the second cladding layer for changing a direction of an optical signal passing through the waveguide core.

Claim 2 (Currently Amended): An optoreflective structure for reflecting an optical signal following a path defined by an optical waveguide comprising a first cladding layer having a first planar cladding surface; a waveguide core disposed on said first cladding layer; a second cladding layer disposed on said waveguide core and having a second planar cladding surface, said waveguide core having a first segment and a second segment, with each segment having a respective propagation direction for light; said first cladding layer, said second cladding layer and the first and second segments of said waveguide core terminating in a generally dove-tailed structure having a front surface, a beveled planar back surface that is wider than the front surface, and two flared side surfaces, each flared side surface extending from the front surface to the beveled planar back surface, each core segment having an end terminating at the front surface of the dove-tailed structure such that each core segment has its propagation direction at an angle to the propagation direction of the other core segment and at an angle to beveled planar back surface; and an optoreflector disposed on said beveled planar surface for changing a direction of an optical signal passing through the waveguide core.

Claim 3 (Currently Amended): A method for producing an optoreflective structure comprising:

providing a substrate supporting a first cladding layer having a first planar cladding surface;

disposing a waveguide core material on said first cladding layer;

forming on said waveguide core material a second cladding layer having a bottom surface disposed on said waveguide core material and a top surface opposite to its bottom surface, said top surface providing a second planar cladding surface;

forming a beveled planar surface in said first cladding layer, in said waveguide core material, and in said second cladding layer such that a portion of the top surface of the second cladding layer is adjacent to the beveled planar surface; and

depositing an optical signal-changing surface on said beveled planar surface and the adjacent portion of the top surface of the second cladding layer.

Claim 4 (Currently Amended): A method for producing an optoreflective structure comprising:

providing a substrate supporting a first cladding layer having a first planar cladding surface;

disposing a waveguide material on said first cladding layer, said waveguide material having a first segment and a second segment, with each segment having a respective propagation direction for light;

forming on said waveguide material a second cladding layer having a second planar cladding surface;

forming in said first cladding layer, in said waveguide material, and in said second cladding layer a generally dove-tailed structure having a front surface, a beveled planar back surface that is wider than the front surface, and two flared side surfaces, each flared side surface extending from the front surface to the beveled planar back surface, each core segment having an end terminating at the front surface of the dove-tailed structure such that each core segment has its propagation direction at an angle to the

propagation direction of the other core segment and at an angle to beveled planar back surface; and

depositing an optical signal changing surface on said beveled planar surface.

Claim 5 (Currently Amended): A method for producing an optoreflective structure comprising:

forming a first ~~waveguide~~ optical layer having a top surface, a bottom surface, cladding material disposed between the layer's top and bottom surfaces, and a first segment of waveguide core material disposed between the layer's top and bottom surfaces and parallel thereto;

forming a first ~~waveguide~~ column of waveguide core material in optical communication with said first segment of waveguide core material ~~waveguide layer~~;

forming a second ~~waveguide~~ column of waveguide core material in optical communication with said first segment of waveguide core material ~~waveguide layer~~; and

forming a second ~~waveguide~~ optical layer disposed above the first optical layer and generally parallel thereto, the second optical layer having a top surface, a bottom surface, cladding material disposed between the second optical layer's top and bottom surfaces, and a second segment of waveguide core material disposed between the second optical layer's top and bottom surfaces and parallel thereto, the second segment being in optical communication with said first ~~waveguide~~ column and with said second ~~waveguide~~ column.

Claim 6 (Currently Amended): An optoreflective structure for reflecting optical signals comprising:

a first optical layer having a top surface, a bottom surface, cladding material disposed between the layer's top and bottom surfaces, and a first segment of waveguide core material disposed between the layer's top and bottom surfaces and parallel thereto;

a second optical layer disposed below the first optical layer and generally parallel thereto, the second optical layer having a top surface, a bottom surface, cladding material disposed between the second optical layer's top and bottom surfaces, and a second

segment of waveguide core material disposed between the second optical layer's top and bottom surfaces and parallel thereto; and

a first column of waveguide core material incorporated within the first and second optical layers and oriented substantially perpendicular to the surfaces thereof, the first column passing through the first segment of waveguide core material and optically coupled to the second segment of waveguide core material ~~a first waveguide layer; a second waveguide layer supporting said first waveguide layer and generally parallel thereto; a first waveguide column communicating with said second waveguide layer and passing through said first waveguide layer~~.

Claim 7 (New): The optoreflective structure of Claim 1, wherein said waveguide core has a side surface oriented substantially perpendicular to the planar cladding surface of the first cladding layer, wherein a portion of the side surface of the waveguide core is adjacent to the beveled planar surface, and wherein said optoreflector is further disposed on the adjacent portion of the waveguide core's side surface.